UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/557,920	11/22/2005	Olivier Simon	SIMON13	4807

1444 7590 12/21/2007

BROWDY AND NEIMARK, P.L.L.C.
624 NINTH STREET, NW
SUITE 300
WASHINGTON, DC 20001-5303

EXAMINER	
KEYS, ROSALYND ANN	
ART UNIT	PAPER NUMBER
1621	
MAIL DATE	DELIVERY MODE
12/21/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/557,920	SIMON ET AL.	
	Examiner	Art Unit	
	Rosalynd Keys	1621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 September 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of Claims

1. Claims 1-26 are pending.

Claims 1-26 are rejected.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable Babler (US 5,197,127) in view of Wessendorf et al. (US 4,065,506), for the reasons given in the previous office action, mailed June 20, 2007.

6. Claims 1-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heydrich et al. (US 2003/0069451 A1) in view of Purves (US 2,194,405), Wessendorf et al. (US 4,065,506), and Babler (US 5,191,127) and further in view of van Dijck (US 2,081,719).

Heydrich et al. teach preparation of diacetals of glyoxal by reacting from 40 to 75% by weight aqueous glyoxal with monohydric alcohols in the presence of an acid catalyst (see entire disclosure, in particular paragraphs 0002-0004, 0008-0014, 0016, 0021, 0027-0030, 0032-0040 and the examples). Concentration of a commercial aqueous glyoxal is taught in paragraph 0021. Temperature and pressures of acetalization are taught in paragraph 0032. Any differences in process conditions are within the level of one having ordinary skill in the art at the time of the invention and are a matter of routine optimization, absent a showing of unexpected results. Changes in temperature, concentrations, or other process conditions of an old process do not impart patentability unless the recited ranges are critical, i.e., they produce a new and unexpected result . In re Aller et al., (CCPA 1955) 220 F2d 454, 105 USPQ 233.

Heydrich et al. differ from the instant invention in that Heydrich et al. teach that glyoxal diacetal may be recovered in any customary manner (see paragraph 0036), whereas the recovery in the instant claims is limited to countercurrentwise liquid-liquid extraction.

Purves teaches that glyoxal tetramethyl acetal may be removed from neutral or alkaline aqueous solution free from methanol by prolonged extraction with a low boiling organic solvent, immiscible, or nearly so, with water, e.g. diethyl ether.

Wessendorf et al. teach a process for refining a glyoxal, specifically glyoxal semiacetal by continuous counterflow extraction using solvents, which are insoluble or sparingly soluble in

water including halogenated hydrocarbons such as methylene chloride, aromatic hydrocarbons such as toluene and cyclaliphatic hydrocarbons such as cyclohexane (see entire disclosure, in particular column 3, lines 3 to 64).

Babler teaches isolation of glyoxal bis(diethyl acetal), a glyoxal diacetal of formula (I), by extraction with methylene chloride (see Example II). Babler inherently teaches the presence of a glyoxal monoacetal of formula (II), since Babler prepares the glyoxal bis(diethyl acetal) in the same manner as the claimed glyoxal diacetal of formula (I), see column 2, line 40 to column 3, line 13).

Van Dijck teaches that it is known to extract certain components from liquids by extraction with a solvent and that such extraction may be carried out counter-currently (see entire disclosure, in particular column 1, lines 4-7). Van Dijck further teaches that the most favorable results are obtained by treating the liquid mixture to be separated with a sufficiently selective solvent in counter-current (see column 1, lines 15-19).

One having ordinary skill in the art at the time the invention was made would have found it obvious to recover the glyoxal diacetals of Heydrich et al. by extraction, as taught by either, Purves, Wessendorf et al. or Babler, since Heydrich et al. teach that the glyoxal diacetal may be recovered in a customary manner and each of Purves, Wessendorf et al. and Babler show the extraction is an effective means for isolating an glyoxal acetal compound. The skilled artisan would have found it obvious to perform the extraction with the water immiscible organic solvent in a countercurrent manner, as taught by van Dijck, since van Dijck teaches that such method of extraction is known and the skilled artisan would have been further motivated to carry out the extraction in a countercurrent manner since van Dijck further teaches that the most favorable results are obtained by treating the liquid mixture to be separated with a sufficiently selective solvent in counter-current.

Response to Amendment

Specification

7. The objection to the disclosure is withdrawn, due to the amendment to the specification, filed September 20, 2007, which adds a brief description of the drawings.

Claim Objections

8. The objection to claims 4-26 under 37 CFR 1.75(c) as being in improper form is withdrawn, due to the amendment to said claims filed September 20, 2007, correcting the improper multiple dependency.

Response to Arguments

9. Applicant's arguments, see paragraph 3 on page 10 of Applicants' remarks, filed September 20, 2007, with respect to claims 1-3 under 35 USC 103(a) as being unpatentable over Stansbury, Jr. et al. (S 3,130,234) in view of van Dijck (US 2,081,719) have been fully considered and are persuasive. The rejection of claims 1-3 has been withdrawn.

10. Applicant's arguments filed September 20, 2007, with respect to the rejection of claims 1-3 under 35 U.S.C. 103(a) as being unpatentable over Babler (US 5,197,127) in view of Wessendorf et al. (US 4,065,506) have been fully considered but they are not persuasive.

Although Babler teaches removal of water during the reaction, the reaction will still inherently produce both the monoacetal and diacetal compounds, since it is the reaction of the glyoxal compound with the alcohol that produces the monoacetal and diacetal compounds. The water is simply a bi-product of the reaction. Thus, its removal is not expected to affect the ability of Babler to produce both the monoacetal and diacetal compounds during his acid-catalyzed acetylation of the alcohol.

The reaction mixture obtained in Example II will inherently contain both the monoacetal and diacetal glyoxal derivatives. Thus, when Babler performs extraction with methylene chloride then Babler inherently teaches extraction of a reaction mixture containing the diacetal and monoacetal glyoxal.

Wessendorf et al. shows that one can interchange the extraction solvent of Babler with other extraction solvents with the expectation of obtaining similar results. The semiacetals of Wessendorf et al. are very close in structure to the glyoxal compounds of Babler as well as the claimed glyoxal compounds, particularly the hydrated glyoxal monoacetal, as disclosed on page 3, line 24 to page 4, line 5 of Applicants specification. Further, Wessendorf et al. deals with a similar problem as Babler. Thus, one having ordinary skill in the art at the time invention was made would have a reasonable expectation of success in exchanging the methylene chloride extraction solvent in the process of Babler for the extraction solvent of Wessendorf et al.

For the above reasons, the rejection of claims 1-3 under 35 U.S.C. 103(a) as being unpatentable over Babler (US 5,197,127) in view of Wessendorf et al. (US 4,065,506) is maintained.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be

calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rosalynd Keys whose telephone number is 571-272-0639. The examiner can normally be reached on M, R & F 5:30-7:30 am & 1-5 pm; T & W 5:30 am-4 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yvonne Eyler can be reached on 571-272-0871. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Rosalynd Keys/
Primary Examiner
Art Unit 1621

December 18, 2007